

walls 242 of body portion 236 in engagement with worm gear portion 236 of the pivot shaft 216. The pair of bearings 248 support the jack screw 250 for rotation when the pivot shaft 216 is rotated by the motor M.

As shown in FIG. 15, the stop portion 238 is formed on a lower end of the body portion 236 of the inner pedal arm 218 to extend rearwardly in the direction of the driven pedal arm 220. The stop portion 238 is formed to engage a portion of driven pedal arm 220 when the pedal is in a forward adjustment position as shown in FIG. 15. A throttle cable 256 is mounted to the aperture 80 formed in the upper portion of the body portion 236. The inner pedal arm 218 may be formed of rigid material, preferably molded.

As shown in FIG. 15, the pedal arm 220 has a generally L-shape with an upper portion 258 forming a channel and a lower portion 260 supporting the pedal 20'. A collar 262 is formed around a top of the upper portion 258 of the pedal arm 220. The collar 262 has throughbores to receive the pivot pin 242.

The upper portion 258 of the pedal arm has a rear wall 264 and a pair of side walls 266 extending therefrom to form the u-shaped channel. The pair of the side walls 266 are spaced apart to receive a slide block 268 therein. The slide block 268 has a threaded bore 270 for receiving the jack screw 250. A pair of pins 272 extend from opposite sides of the slide block 268 to be received in slots 274 formed in each side wall 266. The slots 274 extend longitudinally downwardly from the top to guide the slide block 268 during adjustment. The rear wall has an aperture 276 for fixedly receiving the threaded portion of the jack screw. The position of the pedal arm 220 may be thus adjusted by rotating the pivot shaft 216 and worm gear 226 to turn the pinion gear 254 and jack screw 250 in the slide block 268 of the pedal arm 220. The slots 274 of the pedal arm 220 permit the slide block 288 to move with respect to the pivot rod 256 as the pedal arm 220 pivots during adjustment.

An abutment surface 278 is formed on a front portion of the pedal arm 220 beneath the slots 274. The abutment surface 278 contacts the stop surface 238 of the inner arm 218 when the pedal is in the forward position. The stop flange 280 is formed at the end of the jack screw 250 to stop the travel of the pedal arm 220 at its full rearward adjustment position, as shown in FIG. 18.

As shown in FIG. 16, the motor M is mounted directly to the bracket 214. The motor M includes a gear housing 282 containing the pinion gear 232 which is meshingly engaged with the gear 230 on the end of the pivot shaft 216. Thus, activation of the motor as discussed above turns the pivot shaft 216 to turn the jack screw 250 and adjust the position of the pedal. When the inner arm 218 pivots around the pivot shaft 216 and the pedal 20' is moved, depressed or released during operation of the vehicle, the pinion gear 254 of the jack screw 250 moves along the threads of the worm gear 226. Thus, there is a very small movement of the pinion 254 of the jack screw 250 with respect to the worm gear 226 or the pivot shaft 216. However, this movement is so small as to be negligible in rotating the jack screw so as to change the relative position of the pedal arm 220 to the inner pedal arm 218.

The present invention may also include means for providing a memory option to "remember" and re-set the pedals 20, 20' or pedal arms according to a pre-programmed operator preference. This memory option means may be provided by any suitable means, such as for example, a location transducer such as a potentiometer or encoder. This

memory option means may be in a computer module, which module may be integral with the motor M, but may also be separate from it. The motor M may sense the position of the pedals 20, 20' or pedal arms and send the signal to the computer module.

It is to be understood that the motor M may be any suitable motor having any desired specifications, as required and/or necessitated by a particular end use. An exemplary motor is commercially available from DAEWOO, and preferably has a power rating of approximately $\frac{1}{20}$ horsepower; however, the power rating may be up to between about $\frac{1}{4}$ horsepower and $\frac{1}{3}$ horsepower.

As shown in FIGS. 1 and 15, both the brake pedal and accelerator pedal adjusters may be driven by the same driving means (eg. one cable 60 interconnecting the worm gear 58 in accelerator pedal apparatus 10' to the worm gear 58 in brake pedal apparatus 10, 110 to the motor M). The apparatuses 10, 10', 110, and 210 should be set up in order to synchronize the percentage of pedal travel for each of the apparatuses 10, 10' and 110, 210. It is to be further understood that each of the apparatuses 10, 10' and 110, 210 may be driven independently by separate motors and/or may be driven by separate motors but by the same control device; and/or by any combination or subcombination of the above.

The apparatuses of the present invention are further quite quiet in operation—squeaks and/or rattles are substantially prevented by standard plastic bushings for the pedal pivots; and by bronze thrust bearings for the gear drive.

While preferred embodiments of the invention have been described in detail, it will be apparent to those skilled in the art that the disclosed embodiments may be modified. Therefore, the foregoing description is to be considered exemplary rather than limiting, and the true scope of the invention is that defined in the following claims.

What is claimed is:

1. A pedal adjuster for mounting to a bracket mounted to a vehicle, the pedal adjuster comprising:
 - a pedal assembly including an adjuster member and a pedal arm, said adjuster member mounted to said bracket to pivot said pedal assembly about an adjuster member pivot axis, said pedal arm being mounted to said adjuster member to pivot about a pedal arm pivot axis, said pedal arm pivot axis parallel with and spaced radially outwardly from said adjuster member pivot axis and said bracket;
 - a drive mechanism mounted to said bracket, said drive mechanism having a rod connected at one end to said pedal arm, means for selectively moving said rod to pivot said pedal arm about said pedal arm pivot axis to adjust the position of said pedal arm with respect to said adjuster member.
2. The pedal adjuster of claim 1, wherein said pedal arm pivot axis is positioned in an upper portion of said adjuster mechanism.
3. The pedal adjuster of claim 1, wherein said pedal arm further comprises a pair of parallel side members, and said rod is mounted between said side members.
4. The pedal adjuster of claim 3, wherein each of said side members have a side member having a slot for receiving a portion of said drive mechanism to guide said rod during movement of said rod.
5. The pedal adjuster of claim 1, wherein said means for moving includes a motor.

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1. (Original) A pedal adjuster for mounting to a bracket mounted to a vehicle, the pedal adjuster comprising:

a pedal assembly including an adjuster member and a pedal arm, said adjuster member mounted to said bracket to pivot said pedal assembly about an adjuster member pivot axis, said pedal arm being mounted to said adjuster member to pivot about a pedal arm pivot axis, said pedal arm pivot axis parallel with and spaced radially outwardly from said adjuster member pivot axis and said bracket;

a drive mechanism mounted to said bracket, said drive mechanism having a rod connected at one end to said pedal arm, means for selectively moving said rod to pivot said pedal arm about said pedal arm pivot axis to adjust the position of said pedal arm with respect to said adjuster member.

2. (Original) The pedal adjuster of claim 1, wherein said pedal arm pivot axis is positioned in an upper portion of said adjuster mechanism.

3. (Original) The pedal adjuster of claim 1, wherein said pedal arm further comprises a pair of parallel side members, and said rod is mounted between said side members.

4. (Original) The pedal adjuster of claim 3, wherein each of said side members have a side member having a slot for receiving a portion of said drive mechanism to guide said rod during movement of said rod.

5. (Original) The pedal adjuster of claim 1, wherein said means for moving includes a motor.

6. (New) A pedal adjuster for adjusting the position of a pedal in a vehicle relative to a vehicle operator comprising;

a bracket that is mounted to the vehicle;

a pedal assembly including an adjuster member and a pedal arm, wherein said adjuster member is mounted to said bracket to pivot said pedal assembly about an adjuster member pivot axis and said pedal arm is pivotally mounted to said adjuster member to pivot about a pedal arm pivot axis, such that said pedal arm pivot axis is parallel with and spaced radially outwardly from said adjuster member pivot axis and said bracket; and

a drive mechanism extending between said adjuster member and said pedal arm, wherein said drive mechanism includes a screw rod operatively attached to said pedal arm to selectively position the pedal relative to the vehicle operator.

7. (New) The pedal adjuster of claim 1 wherein said pedal arm pivot axis is positioned in an upper portion of said pedal arm.

8. (New) The pedal adjuster of claim 1 wherein said adjuster member pivot axis is positioned in a lower portion of said adjuster member, and said pedal arm pivot axis is positioned in an upper portion of said pedal arm.

9. (New) The pedal adjuster of claim 1 wherein said drive mechanism extends between an upper portion of said adjuster member and an upper portion of said pedal arm.

10. (New) A pedal adjuster for adjusting the position of a pedal in a vehicle relative to a vehicle operator comprising;

a bracket that is mounted to the vehicle;

a pedal assembly including an adjuster member and a pedal arm, wherein a lower portion of said adjuster member is mounted to said bracket to pivot said pedal assembly about an adjuster member pivot axis and an upper portion of said pedal arm is pivotally mounted to an upper portion of said adjuster member to pivot about a pedal arm pivot axis, such that said pedal arm pivot axis is parallel with and spaced radially outwardly from said adjuster member pivot axis and said bracket; and

a drive mechanism extending between said adjuster member and said pedal arm, wherein said drive mechanism includes a screw rod operatively attached to said pedal arm below said pedal arm pivot axis, to selectively position the pedal relative to the vehicle operator.